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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/830,820	04/27/2001	Toshiaki Yamada	YAMAH5.895AP	2189

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EXAMINER	
VANAMAN, FRANK BENNETT	
ART UNIT	PAPER NUMBER
3618	

DATE MAILED: 03/04/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.	Applicant(s)
09/830,820	Yamada et al.
Examiner	**Art Unit**
Vanaman	3618

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136 (a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) ☐ Responsive to communication(s) filed on _____.

2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.

3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

Disposition of Claims

4) ☒ Claim(s) *10-40* is/are pending in the application.

4a) Of the above, claim(s) *15-20, 27-30, and 37-40* is/are withdrawn from consideration.

5) ☐ Claim(s) _____ is/are allowed.

6) ☒ Claim(s) *10-14, 21-26, and 31-36* is/are rejected.

7) ☐ Claim(s) _____ is/are objected to.

8) ☐ Claims _____ are subject to restriction and/or election requirement.

Application Papers

9) ☒ The specification is objected to by the Examiner.

10) ☒ The drawing(s) filed on *Apr 27, 2001* is/are a) ☐ accepted or b) ☒ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11) ☒ The proposed drawing correction filed on *Apr 27, 2001* is: a) ☒ approved b) ☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12) ☒ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13) ☒ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a) ☒ All b) ☐ Some* c) ☐ None of:

1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

*See the attached detailed Office action for a list of the certified copies not received.

14) ☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).

a) ☐ The translation of the foreign language provisional application has been received.

15) ☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s). *4, 8*
4) ☐ Interview Summary (PTO-413) Paper No(s). _____
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other:

Restriction

1. Applicant's election with traverse of Invention I in Paper No. 12 is acknowledged. The traversal is on the ground(s) that there is no serious burden on the examiner to search and examine an application directed to two patentably distinct inventions. This is not found persuasive because the statutory requirement is not based on examiner burden, rather it is based on the presentation of claims to more than one patentably distinct invention. In the arguments presented with applicant's election, no argument has been made that the two inventions are not patentably distinct, and as such, it is believed that applicant indeed agrees that these two inventions are patentably distinct. Thus, the requirement is still deemed proper and is therefore made FINAL.

2. Claims 15-20, 27-30 and 37-40 are withdrawn from consideration as being directed to a non-elected invention. An office action on claims 10-14, 21-26 and 31-36 follows.

Oath/Declaration

3. The oath or declaration is defective. A new oath or declaration in compliance with 37 CFR 1.67(a) identifying this application by application number and filing date is required. See MPEP §§ 602.01 and 602.02.

The oath or declaration is defective because:

It does not identify the foreign application for patent or inventor's certificate on which priority is claimed pursuant to 37 CFR 1.55, and any foreign application having a filing date before that of the application on which priority is claimed, by specifying the application number, country, day, month and year of its filing.

Note that the declaration refers to the PCT document, and lists a filing date which appears not to be of the PCT, but of one of the three foreign applications.

Drawings

4. The proposed drawing correction and/or the proposed substitute sheets of drawings, filed on April 27, 2001 have been approved. A proper drawing correction or corrected drawings are

required in reply to the Office action to avoid abandonment of the application. The correction to the drawings will not be held in abeyance.

5. The drawings are objected to because they are replete with non English characters. Figures 1, 2b, and 3-11 include numerous occurrences of text in non English characters. The examiner notes that the proposed correction to figure 2A does include English characters, however the originally-filed drawings do not. A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

Specification

6. The disclosure is objected to because of the following informalities: the inserted portion at the beginning of the specification refers to the PCT application, but includes what appears to be a filing date of one of the three foreign applications, however these foreign applications are not further referenced. On page 9, line 3 of the substitute specification, "an display" should be --a display--.

Appropriate correction is required.

Claim Objections

7. Claims 10, 21 and 31 are objected to because of the following informalities: in claim 10, line 13, it appears as though a comma (--,--) should be inserted between "the fuel cell data" and "the fuel cell unit"; in claim 21, line 2, and claim 31, line 2, "first and a second power supply sources" should be either --first and second power supply sources-- or --a first and a second power supply source-- Appropriate correction is required.

Claim Rejections - 35 USC § 112

8. Claims 10-14, 21-26 and 31-36 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. In claim 10, line 10, there is no clear antecedent basis for "the fuel cell unit sensor" (it appears as though the recitation should be --a fuel cell unit sensor--); in

claim 21, line 7, and claim 31, line 7 there is no clear antecedent basis for "first and second power supply devices"; although the claim does recite power *sources*. Care should be taken to insure that the same elements are referred to by the same terminology in order to promote clarity of recitation.

Claim Rejections - 35 USC § 103

9. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

10. Claims 21, 22, 31 and 32 are rejected under 35 U.S.C. 103(a) as being unpatentable over Early et al. (US 4,961,151) in view of Moroto et al. (US 5,892,346). Early et al. teach a power system for a vehicle including a load in the form of a propulsion device (16), power supply sources (10, 12, 14) including batteries (e.g., 12, 14) and a fuel cell (10), each being configured to supply operating power to the load to drive the vehicle, and being connectable in various configurations (see tables I through IV), a controller (40) which can determine available power (through sensing devices 24, 28, 30) and having means to connect and disconnect the sources to the load (18, 18', 20, 20', 22, 22'). The reference to Early et al. fails to teach the controller as further being capable of calculating a travel range. Moroto et al. teach a vehicle configuration (having either a single electric source, or being a hybrid vehicle), which is capable of determining a battery state of charge and consumption of battery capacity based on driving, and determining a range at beyond which charging of the battery would be required (see figs. 4-7 and 9, for example). It would have been obvious to one of ordinary skill in the art at the time of the invention to provide a distance-to-next-charge (i.e., range) computing portion as taught by Moroto et al. to the vehicle power system taught by Early et al. for the purpose of insuring the operator is aware of the possible range of the vehicle prior to attempting a trip. As regards the

fuel cell, the reference to Moroto et al. fails to teach that the capacity of a fuel cell is measured, however in view of Moroto et al.'s teaching to monitor battery charge and the consumption of battery capacity, it would have been obvious to one of ordinary skill in the art at the time of the invention to monitor fuel consumption of the fuel cell in addition to the battery consumption, in order to provide an overall value reflecting the capacity of both the battery and fuel cell, thus providing a more accurate measurement of the vehicle range.

As regards the specific provision of a vehicle body, the Examiner hereby takes Official Notice that it is very old and well known to provide a body on a vehicle, for example, for the purpose of accommodating the passengers and it would not be at all beyond the skill of the ordinary practitioner to include a body portion to the vehicle taught by Early et al. as modified by Moroto et al. in order to accommodate the driver and passengers.

11. Claims 23 and 33 are rejected under 35 U.S.C. 103(a) as being unpatentable over Early et al. in view of Moroto et al. and Rogers (US 5,528,148). The references of Early et al. and Moroto et al. are discussed above and fail to teach a device for emitting a warning in the case of the available range (i.e., the distance which may be traveled before charging is required) being lower than a set value. Rogers teaches a battery monitoring device which includes outputs to a display indicative of condition, including at least one indicator (either visual or audio, see col. 9, lines 29-47) which is active when a battery charge either approaches a low level, or a predetermined level above the low level, thus alerting a user to a limitation in the battery running range. In view of the reference of Moroto et al. using a battery state of charge to determine an allowed distance of travel to the next charge, it would have been obvious to one of ordinary skill in the art at the time of the invention to provide the vehicle of Early et al. as modified by Moroto et al. with an indicating device as taught by Rogers, in order to alert the user that the battery charge is low, or at a predetermined level, and thus that a range of travel before a required charging is needed is below a predetermined value.

12. Claims 24-26 and 34-36 are rejected under 35 U.S.C. 103(a) as being unpatentable over Early et al. in view of Moroto et al. and Chady et al. (US 6,091,228). The references of Early et al. and Moroto et al. are discussed above, and fail to teach the battery capacity as being calculated from a pair of current and voltage values taken at a time interval, and a subsequent determination of the battery impedance. Chady et al. teach a battery state of charge determining system including the measurement of voltages and currents at two times (V_1, i_1 at time '1' and V_2, i_2 at time '2'), from which a battery impedance (i.e., AC resistance) is determined. It would have been obvious to one of ordinary skill in the art at the time of the invention to use the impedance determining scheme of Chady et al. to measure the battery state for the purpose of making a more accurate determination of the battery impedance. Note that while the reference to Chady et al. fails to explicitly teach the use of a memory device, the retention of voltage and current data from two different times would inherently require the use of a memory device in order, for example, for the earlier-taken voltage and current values to be retained for the calculation.

Allowable Subject Matter

13. Claim 10 would be allowable if rewritten or amended to overcome the rejection(s) under 35 U.S.C. 112, second paragraph, set forth in this Office action.

14. Claims 11-14 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, second paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.

Conclusion

15. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Azuma et al. (US 5,631,532), Brigham et al. (US 5,820,172), Theurillat et al. (US 5,847,520), Drozdz et al. (US 5,898,282), Lyons et al. (US 5,929,595 and 5,941,328), and Ono (EP 592,319) teach vehicle systems of pertinence.

16. Any inquiry concerning this communication or earlier communications from the examiner should be directed to F. Vanaman whose telephone number is (703) 308-0424. Any inquiry of a general nature or relating to the status of this application should be directed to the group receptionist whose telephone number is (703) 308-1113.

Any response to this action should be mailed to:

Assistant Commissioner for Patents
Washington, DC 20231

or faxed to :

(703) 305-3597 or 305-7687 (for formal communications intended for entry; informal or draft communications may be faxed to the same number but should be clearly labeled "UNOFFICIAL" or "DRAFT")

The Office has also established electronic fax servers for Technology Center 3600 as follows:

703-872-9326 (Official communications)
703-872-9327 (Official After Final communications)
703-872-9325 (Customer Service)

F. VANAMAN
Primary Examiner
Art Unit 3618

F. Vanaman
February 27, 2003

2/27/03